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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/693,072 | 10/24/2003 | Douglas R. Beck | MS306455.1 | 3380 |
| 27195 7590 05/16/2008 AMIN. TUROCY & CALVIN, LLP 24TH FLOOR, NATIONAL CITY CENTER 1900 EAST NINTH STREET CLEVELAND, OH 44114 | | | EXAMINER CHAUHAN, LOREN B | |
| | | | ART UNIT 2193 | PAPER NUMBER |
| | | | NOTIFICATION DATE 05/16/2008 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/693,072 | Applicant(s) BECK ET AL. | |
| | Examiner LOREN CHAUHAN | Art Unit 2193 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/10/2006, 2/12/2007, 11/21/2007, 3/14/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-40 are pending for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-28 and 37-39 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 17, 20 and 37 are directed to a system; but the body of the claims can reasonably be interpreted as “software per se”. Applicant is advised to incorporate “...comprising a processor that...” in line 1 to fix the deficiency.

Claims 2-16, 18, 19, 21-28, 38 and 39 are rejected for similar reasons as discussed for their respective parent claims, as they fail to present any limitations that resolve the deficiencies of the claim from which they depend.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-19, 29-31, 34 and 36-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Bigus (US PG-Pub. No. 2004/0083454).
6. As per claims 1 and 40, Bigus teaches the invention as claimed including a system that facilitates processing rules, comprising a translator component that translates synchronous statements to asynchronous instructions using a synchronous programming model (fig. 2B; paragraph [0066]; [0041]; [0045] lines 1-5; [0074] lines 1-3; e.g. rules are parsed into rule blocks and are processed by the specified inference engines either synchronously or asynchronously depending on inference engine), which instructions facilitate calling utility functions and yielding to runtime code switching (paragraph [0045]; e.g. rules can also call out to arbitrary methods to receive values and invoke actions and rules can be written that invoke other rule blocks).
7. As per claim 2, Bigus teaches the statements are organized into a series of rule types (paragraph [0045] lines 4-3; paragraph [0046] lines 1-2).
8. As per claim 3, Bigus teaches the rule types express logic that determines the desired state of a target resource (paragraph [0047]).

9. As per claim 4, Bigus teaches in response to a desired state, and action is taken (paragraphs [0049-[0055]).

10. As per claim 5, Bigus teaches the translator component facilitates instantiation of the asynchronous instructions (paragraphs [0074]; [0042] lines 1-5; [0071] lines 1-2).

11. As per claim 6, Bigus teaches the instructions facilitate concurrent processing by a runtime engine (paragraphs [0074] lines 1-3; [0041] last 5 lines; [0042] lines 1-6).

12. As per claim 7, Bigus teaches the instructions facilitate maintaining all states by the runtime engine, which states include at least one of arguments and local variables (paragraph [0056]).

13. As per claim 8, Bigus teaches the instructions facilitate at least one of yielding to runtime rule code execution switching and calling a utility function (paragraph [0045] lines 1-3).

14. As per claim 9, Bigus teaches the instructions insert periodic yield statements (paragraphs [0045] lines 4-6; [0073]).

15. As per claim 10, Bigus teaches the translator component facilitates depth-first traversal to generate at least one of labels and temporary variables for corresponding nodes (paragraph [0056]).

16. As per claim 11, Bigus teaches the translator component translates modules of the rules into classes (paragraph [0071] lines 1-5).

17. As per claim 12, Bigus teaches the instruction includes an address code representation to facilitate context switching by a runtime engine (paragraph [0047]; [0045]).

18. As per claim 13, Bigus teaches the address code representation employs at least three address codes, which representation is used when a statement or expression includes an asynchronous call (paragraphs [0053] to [0055]).

19. As per claim 14, Bigus teaches the instructions are translated into a series of instruction blocks that are separated into switch-case blocks (paragraphs [0047]; [0049] to [0055]).

20. As per claim 15, Bigus teaches instructions within the instruction block are executed as a unit, and yield to runtime execution only between such instruction blocks (paragraph [0047]).

21. As per claim 16, Bigus teaches the series of instruction blocks has associated therewith an update identifier that maintains which instruction block of the series is to be executed next upon reentry into the rule (paragraphs [0075]-[0076]; e.g. predicates)

22. As per claims 17, 29 and 37, Bigus teaches the invention substantially as claimed including a system that facilitates concurrent processing of rules (paragraph [0016]), comprising: receiving a plurality of the rules (paragraph [0016]); a translator component that translates the rules into instructions for concurrent processing (229-233, fig. 2B and related text; fig. 4 and related text "parsing and compilation of rule sets") and a runtime engine that schedules the instructions for processing and processes some or all of the instructions concurrently according to the schedule (paragraph [0042]; "A collection of rule language rules is a collection of declarative and procedural statements that can be actively interpreted or processed by one or more inference engines."); and receiving configuration data into the runtime engine to instantiate the rules (paragraph [0071]).

23. As per claim 18, Bigus teaches the runtime engine facilitates implicit concurrent processing of the rules (paragraphs [0074]-[0075]; e.g. the ruleset bean is a bean that provides support for processing events, either synchronously or asynchronously).

24. As per claim 19, Bigus teaches the runtime engine receives both the instructions and configuration data, which configuration data specifies at least one of which rules to run and the parameters required to run the rule (paragraph [0071]; e.g. operations can be transformations of rule objects into local data structures and instance variables used by the engine to process the rule objects).

25. As per claim 30, Bigus teaches injecting yield instructions into the rule to facilitate yielding execution of the rule to rule code execution switching during processing by the runtime engine, and to facilitate calling utility functions provided by the runtime engine (paragraph [0073]).

26. As per claim 31, Bigus teaches the translated instructions are translated into a series of instruction blocks, wherein commencement of execution of the instruction block causes the instruction block to be executed in its entirety before yielding to the runtime engine (paragraph [0047]).

27. As per claim 34, Bigus teaches the instructions are scheduled for processing in batches by the runtime engine, such that rules of a batch are scheduled for processing uniformly over associated time interval for processing the batch (paragraph [0074]).

28. As per claim 36, Bigus teaches scheduling is performed according to a non-preemptive scheduling regime (paragraph [0075]).

29. As per claim 38, Bigus teaches the means for converting includes means for inserting control relinquishment code into the rule that determines where to relinquish control of the associated translated instruction during execution thereof, which relinquishment code is associated with a stack frame that contains at least one of parameters, local variables, and where in the translated instruction to jump upon reentry (paragraph [0075]; [0073]).

30. As per claim 39, Bigus teaches means for task switching between rules, where the translated instructions includes call frames to facilitate task switching (paragraphs [0072]; [0049]-[0055]).

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claims 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bigus (US PG-Pub. No. 2004/0083454) in view of Yadav (US PG-Pub. No. 2004/0111638).

33. As per claim 20, Bigus teaches the invention substantially as claimed including a system that facilitates processing rules in a model-based management architecture (paragraph [0016]), comprising: a translator component that translates the rules into asynchronous instructions for concurrent processing (229-233, fig. 2B and related text; fig. 4 and related text "parsing and compilation of rule sets"); and a runtime engine that schedules the translated instruction for processing and processes some or all of the instructions concurrently according to the schedule (paragraph [0042]; "A collection of rule language rules is a collection of declarative and procedural statements that can be actively interpreted or processed by one or more inference engines.").

34. Bigus does not explicitly teach a plurality of rules that express health criteria for the architecture.

35. Yadav in analogous art teaches a plurality of rules that express health criteria for the architecture (paragraph [0013] lines 7-13).

36. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Bigus and Yadav so that

rules engine can detect and deploy security policies or rules that can protect against any vulnerabilities associated with the adverse system conditions.

37. As per claim 21, Bigus teaches the runtime engine operates according to one of the instructions that suspends processing of code and waits for an event to occur, in response to which processing of the code is resumed and allowed to act on the event (paragraphs [0049]-[0055]).

38. As per claim 22, Bigus teaches one of the plurality of rules invokes another rule (paragraph [0045]; e.g. rules can be written that invoke other rule blocks).

39. As per claim 23, Bigus and Yadav do not explicitly teach the engine schedules execution of an execution stack based on a polling structure for the current frame and if the polling structure is at the top of the execution stack. However, Bigus (paragraphs [0016]; [0061]) and Yadav (paragraph [0013] lines 7-12) both disclose defining and processing rules for a system to operate autonomously therefore it is obvious to one of the ordinary skill in the art to define the rules for scheduling the instructions for processing

40. As per claim 24, Bigus teaches the instruction component includes a language that facilitates looping, such that prior to jumping, a rule returns to the runtime engine to facilitate non-pre-emptive scheduling (paragraph [0075]).

41. As per claim 25, Bigus teaches the translated instructions facilitate cooperative multitasking so that an execution state of a function is preserved, and constituted at a later time (paragraph [0075]).

42. As per claim 26, Bigus teaches the instruction facilitate constructing a call frame, which call frame includes at least one of a function parameter, current instruction block, current function, and local variable (fig. 9; paragraph [0076]).

43. As per claim 27, Bigus and Yadav do not teach the runtime engine includes a spreading algorithm that spreads execution of tasks over duration of time beginning from an arbitrary time to reduce over-utilization. However, Bigus (paragraphs [0016]; [0061]) and Yadav (paragraph [0013] lines 7-12) both disclose defining and processing rules for a system to operate autonomously therefore it is obvious to one of the ordinary skill in the art to define the rules for utilizing spreading algorithm to spread the execution tasks to reduce the burden on the processors.

44. As per claim 28, Bigus teaches a computer system according to the system (fig. 2A; paragraph [0063]).

45. Claims 32, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bigus (US PG-Pub. No. 2004/0083454).

46. As per claim 32, Bigus teaches during a startup process, building a task list of rules marked for execution by the runtime engine at startup (paragraph [0045]; [0025]).

47. Bigus does not explicitly teach spreading out initiation of the rules in batches such that each batch of rules is scheduled for processing within a time configured time interval.

48. However, Bigus teaches defining different ruleset bean that an inference engines can process (paragraph [0042]; [0016]).

49. Therefore, it would have been obvious to one of ordinary skill in the art to use the invention of Bigus to define the rules to process the instructions within a time interval so that system can process instructions and run according to the rules set by users autonomously.

50. As per claim 33, Bigus does not explicitly teach configuring the time interval based upon predetermined criteria, which criteria includes a number of processors utilized by the computer. However, Bigus teaches defining different ruleset bean that an inference engine can process (paragraph [0042]; [0016]); therefore it would have been

obvious to one of ordinary skill in the art to define the rule that configure the time interval based upon predetermined criteria, which criteria includes a number of processors utilized by the computer.

51. As per claim 35, Bigus does not explicitly teach scheduling the translated instructions for processing based upon a polling structure, which processing occurs for at least one of the polling structure of a current frame and the polling structure at the tops of a stack.

52. However, Bigus teaches defining different ruleset bean that an inference engines can process (paragraph [0042]; [0016]).

53. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the invention of Bigus to define scheduling the translated instructions for processing based upon a polling structure, which processing occurs for at least one of the polling structure of a current frame and the polling structure at the tops of a stack so that system can process instructions and run according to the rules set by users autonomously.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOREN CHAUHAN whose telephone number is 571-270-1554. The examiner can normally be reached on Mon.-Thr. 9:30-5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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